

**ANNUAL REPORT OF ACCOMPLISHMENTS AND RESULTS**

**For**

**THE SOUTHERN UNIVERSITY AGRICULTURAL RESEARCH  
AND EXTENSION CENTER**



**Presented to**

**THE UNITED STATES DEPARTMENT OF AGRICULTURE/  
COOPERATIVE STATE RESEARCH, EDUCATION, AND  
EXTENSION SERVICE**

**Federal Fiscal Year**

**2003-2004**

**(October 1, 2003 – September 30, 2004)**

Submitted April 1, 2005

## Table of Contents

<b>Table of Contents</b> .....	ii-iv
<b>Introduction</b> .....	1-2
Planned Programs .....	1
Overview .....	2
<b>Stakeholders Input Process</b> .....	2-4
Strategic Planning Conference .....	3
Joint Research-Extension Exchange Meeting .....	3
Parish Advisory Councils .....	3
Survey of Clients .....	4
Survey of Extension Staff .....	4
Chancellor and Program Areas Advisory Councils .....	4
Program Area Advisory Councils .....	4
<b>Program Review</b> .....	4-5
Merit Review by CSREES.....	4
Peer Review .....	4-5
<b>Five National Goals for Agriculture</b>	
<b>National Goal 1:</b> An agricultural production system that is highly competitive in the global economy.....	5-16
RESEARCH PROJECTS .....	5-12
0. Effects of Grazing Cattle and Goats Together and Separately on Animal Performance .....	5-7
0. Refinement of Laboratory Methods for Bone Particle Determination in Mechanically Deboned Rabbit Meat .....	7-9
0. Use of Crawfish Waste in Livestock Diets and Plant Production .....	9-10
0. Utilizing Multiple Indices to Measure Quality Deterioration in Value-Added Meat Products During Storage .....	10-11
0. Modified Hydroponics Systems for Field Production of Strawberry .....	11-12
EXTENSION PROGRAMS .....	12-16
0. Small Farm Viability .....	13-14
0. Adding Value to New and Old Agricultural Products .....	14
0. Louisiana Agricultural Mediation Program (LAMP) .....	14-16

<b>National Goal 2: A safe and secure food and fiber system .....</b>	<b>16-20</b>
RESEARCH PROJECTS (None) .....	16
EXTENSION PROGRAMS .....	16-20
0. Families First - Nutrition Education and Wellness System (FF-NEWS) .....	17-18
0. Food Safety at Home – Computer Based Food Safety .....	18-19
0. Preventing Foodborne Illnesses in a Vulnerable Lower Mississippi Delta Population .....	19-20
<b>National Goal 3: A healthy, well nourished population .....</b>	<b>21-31</b>
RESEARCH PROJECTS .....	21-28
0. Nutritional Label Use, Nutritional Knowledge, and Food Security in Louisiana .....	21-23
0. Effectiveness of Early Nutritional Intervention Strategies for Head Start Teachers in Louisiana .....	23-24
0. New Technologies for the Utilization of Textile Materials .....	25-28
EXTENSION PROGRAMS .....	28-31
0. Health Risk Factor Reduction .....	29
0. Health Community Advisory Council .....	30-31
<b>National Goal 4: Greater harmony between agriculture and the environment .....</b>	<b>31-35</b>
RESEARCH PROJECTS .....	31-34
0. Biological Response of Southern Red Oak and Willow to Hypoxia in the Rhizosphere .....	31-33
0. A GIS-RS Supported NPS-Management Information System for Urban Agriculture.....	33-34
EXTENSION PROGRAMS .....	34-35
1. Sustainable Agriculture .....	34-35
<b>National Goal 5: Enhanced economic opportunity and quality..         of life for Americans.....</b>	<b>35-44</b>
RESEARCH PROJECTS (None) .....	35

EXTENSION PROGRAMS .....	35-44
Youth Development – Overview .....	35-36
0. Youth Development (Youth Educational Support After School Program) .....	36
0. Youth Development (Livestock and Poultry Show) .....	36-37
Community Development – Overview .....	37-38
0. Community and Faith-Based Development .....	38
0. Center for Rural and Small Business Development .....	39-40
0. The Center for Community Development (CCD) .....	40
0. Consumer Education and Training .....	40-41
0. Child Care Program .....	41-42
0. Family Strengthening Program .....	43
<b>Evaluation Framework .....</b>	<b>43-44</b>

## **INTRODUCTION**

Southern University Agricultural Research and Extension Center (SUAREC) was established July 1, 2001 as the fifth campus of the Southern University and Agricultural & Mechanical College System out of the need to increase the impact of the land-grant programs on the citizens of Louisiana. SUAREC combines both research and cooperative extension programs into a unified system at the campus level. The Center assumes administrative responsibilities for the federal research and extension funds as stipulated under sections 1444 and 1445 of the National Agriculture Research, Extension and Teaching Policy Act (NARETPA) of 1977. Sections 202 and 225 of the Agricultural Research, Extension and Education Reform Act of 1998 (AREERA) which amended the Smith-Lever Act, the Hatch Act, and the NARETPA of 1977 requires the submission of the Plan of Work (POW) by institutions in order to continue to receive formula funds for its research and extension programs.

The POW submitted by Southern University for October 1, 2000 – September 30, 2004 consists of two separate plans for the research and extension programs. The annual reports for both research and extension programs were submitted separately. However, effective FY 2003, the annual report of accomplishments and results is being submitted jointly, i.e., as a combination of both research and extension programs. Also, effective FY 2004, both research and extension Plans of Work were submitted jointly by SUAREC. This document reports accomplishments and results for Fiscal Year 2004 (October 1, 2003 to September 30, 2004) consistent with the approved POW.

## **PLANNED PROGRAMS**

In order to address the five national goals for agriculture, the Southern University Agricultural Research and Extension Center places emphasis on the following broad areas:

- 1. Sustainable Agricultural Systems
- 2. Urban Forestry and Natural Resource Management
- 3. Nutrition and Health
- 4. Family and Human Development
- 5. Youth Development
- 6. Economics and Community Development

To further enhance its capacity to address the five national goals for agriculture, SUAREC Research and Extension Programs have key program areas. Research program areas include: (1) Plant and Animal Production Systems, (2) Human Nutrition, Health, Family and Consumer Sciences, (3) Urban Forestry, Natural Resources and Environment, and (4) Economics, Marketing, Policy and Community Development. Extension program areas include: (1) Agriculture and Natural Resources, (2) Diet, Nutrition and Health Education, (3) Family and Human Development, (4) Youth Development, and (5) Community and Economic Development.

## **OVERVIEW**

The mission of SUAREC is to conduct basic and applied research, and disseminate information to the citizens of Louisiana in a manner that is useful in addressing their scientific, technological, social, economic and cultural needs. The goal is to have diverse audiences, who have limited social and economic resources, improve their access to positive opportunities through research and outreach education. SUAREC aims to help small-scale and limited resource farmers and ranchers develop and/or maintain viable farming operations that are in harmony with the environment, help communities build capacity to enhance the growth and development of the business and industrial sectors, and improve the quality of life for families and youth throughout the State. To ensure that clientele needs are addressed effectively, the research and extension programs target the same clients. Research projects are designed with inputs from stakeholders and the findings are specially packaged and disseminated by the extension agents.

## **STAKEHOLDERS INPUT PROCESS**

Soliciting stakeholder input is a continuous process which is embedded in Southern University Agricultural Research and Extension Center's entire program development process. Stakeholder inputs are used to establish priorities, goals and objectives consistent with state, regional and national issues based on the land-grant philosophy. The Parish Advisory Council is organized at the grassroots level by each extension program to involve clients, community leaders, state and local government officials, and other stakeholders in the process of identifying community needs and/or resources, programs and projects to address them. Parish advisory council meetings are conducted at least once annually and important discussions are documented and utilized by the extension agents in developing the parish plan of work. An evaluation of the extension staff showed that 100 percent of the staff have functioning parish advisory councils. The study also indicated that 100 percent of SUAREC extension staff sought inputs from parish advisory councils, focus groups, public forums, clients and community leaders when planning their work.

Extension Agents use information from focus groups, public forums, community leaders, and the client need assessment to develop their plan of work. Agents' plans of work, need assessment, and information from the forums are submitted to the specialists at the state office. The state specialists meet monthly with the Vice Chancellor for Extension to report on progress of work (and problems) and to review and/or revise where necessary. Additionally, the joint research-extension exchange meetings are held periodically to identify critical areas that warrant research by the Center to better serve the needs of clients. Furthermore, the Chancellor's Advisory Council serves to advise the Chancellor on ways that would ensure greater stakeholder input in identifying and planning meaningful, effective and efficient research, education and outreach programs to benefit the citizenry of the state of Louisiana.

In summary, the Center's research and extension programs, the federal 5-year plan of work and the state strategic plan are developed based on the information from the grassroots such as, Parish Advisory Councils, parish plan of work, the Louisiana

Cooperative Extension Service, and parish review team, needs assessment, evaluation studies, Strategic Planning Meeting, Joint Research-Extension Exchange Meetings, Chancellor's Advisory Council, Program Areas Advisory Councils, Federal and State Agencies, Commodity Organizations, and Land Grant Institutions.

Information collected from these various sources by the Office of Planning and Evaluation is made available to the Research and Extension administrators who in turn utilize them to plan their program/projects to address needs/problems based on priority.

The following are some of the sources of the stakeholders input:

- **Strategic Planning:** The First Annual Southern University Agricultural Research and Extension Center strategic planning conference was held to develop the current strategic plan. The retreat provided a forum for sharing knowledge and information between research and extension faculty and staff and for creating a model designed to integrate both entities. The main outcome was the exchange of information to ensure that research and extension programs in the Center are relative to the needs of the people of Louisiana and planned to address the needs of citizens. Research and extension faculty and staff from each of the six program areas of SUAREC met to discuss and plan strategies to efficiently and effectively provide services to clientele.
- **Joint Research-Extension Exchange Meetings:** As a follow up to the strategies of the strategic planning conference, joint research-extension exchange meetings were held to identify critical areas which warrant research by the Center to better serve the needs of clients. Two general and several subject matter joint meetings have been held, the information gathered is incorporated in the development of the FY 2005-2006 Plan of work.
- **Parish Advisory Councils:** Organized at the grassroots, are Parish Advisory Councils for each extension program area. These Councils involve clients, community leaders, state and local government officials, and other stakeholders who are identifying community needs and/or resources, programs and projects to address them. Parish advisory council meetings are conducted regularly, and important discussions are documented and utilized in the joint research-extension exchange meetings. An evaluation of extension staff shows that 100 percent of the staff have functioning parish advisory councils in their areas. The study also indicated that 100 percent of SUAREC extension staff sought inputs from parish advisory councils, focus groups, public forums, clients and/or community leaders when planning their work.

Additionally, public forums involving community leaders are usually conducted during the Annual Faith and Community Economic Development Conference. In FY 2003, the sixth of such conferences took place in Lafayette, Louisiana and forums were conducted to seek inputs on best ways to institute programs that will improve quality of life for the people of Louisiana through research and education.

- **Survey of Clients:** The Office of Planning and Evaluation of SUAREC conducted a pilot survey of clients to seek their inputs in assessing programs already in place, gather data on areas of needs, and evaluate the impacts of existing programs. These findings are vital to the conceptualization and implementation of programs that will ensure improved quality of life.
- **Survey of Extension Staff:** The Office of Planning and Evaluation also surveyed the extension staff to assess progress of previous year's initiatives, identify new and emerging issues that SUAREC should consider, and to seek their inputs with regards to research, education and outreach programs necessary to making life better for citizens. Findings from the surveys are incorporated in the FY 2005-2006 Plan of Work.
- **Chancellor's Advisory Councils:** The Chancellor's Advisory Council which convened during the period has representatives from various stakeholders' interests such as Clients, Clientele groups, Federal and State Agencies, Commodity Organizations, Land Grant Institutions, and other Agriculture, Family and Consumer Sciences related groups. The Council advises the Chancellor on ways that would ensure greater stakeholder input in identifying and planning meaningful, effective and efficient research, education and outreach programs to benefit the citizenry of the state of Louisiana.
- **Program Areas Advisory Councils:** These Councils, though still in their infancy, are expected to ensure greater stakeholder input in identifying and planning meaningful, effective and efficient research, education and outreach programs to benefit the citizenry of the state of Louisiana.

## **PROGRAM REVIEW:**

- **Merit Review by CSREES:** A request was submitted to the United States Department of Agriculture/Cooperative State Research, Education, and Extension Service (USDA/CSREES) in Washington, D.C. for a comprehensive review of the research program in the fall of 2004. A review team headed by a senior staff of the CSREES reviewed the Center's research projects for relevancy of the research to local and national needs, program performance (output, outcomes, and impacts), adequacy of resources to meet program objectives, and the interrelationship between research and extension. Preliminary findings provided by the team indicate that SUAREC's research projects are accomplishing targeted objectives. These findings will be utilized by SUAREC for program direction and allocation of resources. Additionally, SUAREC continues to conduct internal evaluation of all research projects to ensure that they are meeting the needs of its clients.
- **Peer Review:** All CSREES funded programs/projects and others seeking funding are subjected to a thorough scientific and educational peer review process. A

Proposal Review and Evaluation Committee comprising of faculty and staff from SUAREC and the greater university community has been established. It operates as a standing committee to review proposals consistent with standard agency guidelines and other established scientific and educational criteria. Proposals usually undergo strict review, scrutiny and endorsement by discipline peers, program head, and a select review committee. Additionally, each proposal must show clear evidence of stakeholder input prior to approval by the Vice Chancellor for Research and/or Vice Chancellor for Extension.

## **FIVE NATIONAL GOALS FOR AGRICULTURE**

To address the five national goals for agriculture, SUAREC planned and executed its research and extension programs as follows:

### **National Goal 1: An agricultural production system that is highly competitive in the global economy.**

SUAREC's research and extension programs in sustainable agriculture, human nutrition, diet, health, family and consumer sciences worked in concert in addressing this goal. This was accomplished through the following projects :

#### **RESEARCH PROJECTS:**

0. Effects of Grazing Cattle and Goats Together and Separately on Animal Performance
0. Refinement of Laboratory Methods for Bone Particle Determination in Mechanically Deboned Rabbit Meat
0. Use of Crawfish Waste in Livestock Diets and Plant Production
0. Utilizing Multiple Indices to Measure Quality Deterioration in Value-Added Meat Products During Storage
0. Modified Hydroponics Systems for Field Production of Strawberry

#### **1. Effects of Grazing Cattle and Goats Together and Separately on Animal Performance**

In 2002, beef cattle production ranked fourth as a major agricultural enterprise in Louisiana in terms of the value of products sold. The state's cattle producers earned \$157,153,000 (9 percent of the total cash receipts from the sale of farm products) from the sale of cattle and calves in 2002. The most popular form of beef cattle production in Louisiana is the cow-calf system in which producers maintain and breed a herd of brood cows and sell the calves as weanlings. In Louisiana, 26 percent of beef producers have less than 9 brood cows and 50 percent have less than 19 brood cows (1997 Census of Agriculture, AC97-A-18, 1999).

Goat meat production is increasing in popularity in the Southeastern United States. Goat meat production is a good prospect for diversification and enhancement of small farmers' income. The potential for goat production to substitute or complement traditional livestock rests on three premises. 1) Goats can be produced with relatively little capital and labor, the meat is rich in protein and U.S. consumers are becoming more heterogeneous and many are willing to try new and exotic products. 2) Cattle are grazers and will not consume all the grass in a given area. 3) Goats are browsers and are more selective, thus they have a tendency to nibble on leaves, twigs, and young shoots of trees or shrubs. Therefore, the two species together should consume everything for efficient utilization of available forages.

The goal of this project is to assist small beef producers in increasing their production and economic base by utilizing available natural farm resources while exploring the complementarity of goat production.

**Key Theme:** The central theme of this project is to raise forage-based livestock throughout the year with minimal supplementation.

**Output Indicators:** The end product of this project is the efficient utilization of pastures for livestock production. Naturally, cattle are grazers and tend to consume all the grass they could grasp by their tongue, leaving weeds and woody plants behind. On the other hand, goats are browsers and are more selective.

#### **Publications/Presentations**

Gebrelul, S., A. Chapell, Y. Ghebreyessus, V. Bachireddy, G. Simon, O. Udoh. 2004. "The Effects of Mixed-Species and Grazing Management on the Performance of Brangus Cows: Early Observations". Annual Meeting of the Southern Association of Agricultural Scientists (SAAS). Tulsa, Oklahoma.

Gebrelul, S., A. Chapell, Y. Ghebreyessus, V. Bachireddy, G. Simon, O. Udoh. 2004. "Mixed-species and Grazing Management Effects on the Performance of Goats: Preliminary Observations". Annual Meeting of the Southern Association of Agricultural Scientists (SAAS). Tulsa, Oklahoma.

Gebrelul, S., A. Chapell, Y. Ghebreyessus, V. Bachireddy, G. Simon, O. Udoh. 2003. "Status Report on the Goat and Cattle Grazing Project". Annual Meeting of the Small Ruminant Exchange Group. Langston, Oklahoma.

**Outcome Indicators:** The multi-species grazing project was initiated in July, 2003. It is still in the preliminary stages of research. Three research presentations have been made at professional conferences. On the basis of the interest displayed by the audience, it is obvious that information emanating from the project will be widely utilized.

**Impact:** The multi-species project is already yielding positive economic impacts. The project contributed to the 2004 funding of a multi-state initiative of creating opportunity for small scale goat producers. Five farmers currently participating in this project will

serve as peer mentors, model farmers and advisors to other limited resource clients. The site of the mixed-species project is serving as a laboratory for training in production, management, nutrition, and health of goats. Other workshops in processing, value-added product development and marketing are planned. Most of the goats placed under the care of the farmers are kidding. These farmers may gross about \$2,000 (\$80 x 25) annually as a result of their participation in the project. Above all, the participants have reported site visits by several farmers in the surrounding parishes.

**Scope of Impact:** Information generated from this project will be disseminated widely by collaborators such as Louisiana State University Agricultural Center and the Louisiana Department of Agriculture and Forestry. Citizens of Louisiana, Southeastern United States, and other areas where multiple species grazing may be practiced could benefit from the study.

**Funding Source(s):** Evans-Allen (USDA/CSREES)

## **2. Refinement of Laboratory Methods for Bone Particle Determination in Mechanically Deboned Rabbit Meat**

Rabbit meat is normally sold retail as a whole or cut-up carcass at prices that compete with high grade beef. Consumers of this sort of product do not want to deal with whole carcasses, so means must be devised to produce a microwave ready product. To make this economical, mechanical deboning must be used but the current regulations covering mechanically separated product depend on a process that does not thoroughly separate meat and connective tissue. As a result, mechanically separated rabbit (MSR), as a new product, cannot meet the standards with regard to maximum bone particle size.

Work in our laboratories has concentrated on developing a faster, better and more environmentally friendly process for determination of the size of bone fragments in MSR. Utilizing three enzymes and shorter incubations, we have been able to speed up the separation process, make it more efficient and avoid the use of carbon tetrachloride. Current studies involve validation of the process.

**Key Theme:** Value added animal products

**Output Indicator:** Incubation of samples without prior autoclaving and the use of a combination of proteolytic enzymes enhance the digestion of soft tissue and greatly reduce the time required for incubation. Use of carbon tetrachloride, acetone and ether can be eliminated.

### **Publications/Presentations:**

J. I. McNitt, Z. Negatu and K. McMillin. 2002. Mechanical deboning of rabbit carcasses. Proc. Segundo Congreso de Cunicultura de las Americas, July 19-22, 2002, Habana, Cuba pp. 236-239.

J. I. McNitt, Z. Negatu and K. McMillin. 2003. Influence of rabbit age, deboner drum aperture and hind/fore carcass half on mince components of mechanically separated rabbit. *Journal of Muscle Foods*, 14(1):25-32

J. I. McNitt, Z. Negatu and K. McMillin. 2004. Bone particle determination in mechanically separated meat – Preliminary Results. *Proc. 8<sup>th</sup> World Rabbit Congress*, Puebla, Mexico, September 7-10, 2004, pp. 1416-1421.

A final manuscript entitled “Determination of Small Bone Fragments in Mechanically Separated Rabbit Meat” is nearly complete and will be submitted to the *Journal of Food Composition and Analysis* soon.

b. The first objective has been fulfilled with development of a faster, more environmentally sound method for bone particle determination.

c. We are working to produce a deboned rabbit product that meets the federal requirements for MSR. This may require using a drum with apertures less than 1.3 mm or using a different type of deboner.

**Outcome Indicators:** The modified procedure improves digestion, reduces incubation time, and is safer to use. The outcomes from this research are still some time in the future. Upon publication of the final paper, it is hoped that, because of its positive environmental effects and shortened time, the technique will become more widely used for all species, not just rabbit meat.

Because we are not yet able to meet the USDA requirements for MSR, development of further processed rabbit products will lie somewhere in the future. This will also affect the increase in number of rabbit producers and the installation of deboning in processing plants.

**Impacts:** Preliminary results from this project were presented at the 8<sup>th</sup> World Rabbit Congress in Mexico in September 2004. After the presentation, scientists from Spain and Germany expressed interest in carrying the work further to produce value added products from rabbit meat.

Incubation of samples without prior autoclaving and the use of a combination of proteolytic enzymes enhances the digestion of soft tissue and greatly reduces the time required for incubation. This provides a more reliable and usable procedure for determination of bone content in mechanically separated meat. Elimination of the use of carbon tetrachloride, acetone and ethyl ether makes the modified procedure safer for the environment and for the laboratory personnel carrying out the tests. The modified procedure improves digestion, reduces incubation time, and is safer to use.

**Scope of Impact:** The project is not yet complete, but it is beginning to attract the attention of meat rabbit producers in Louisiana, and researchers from the United States, Mexico, Spain, and Germany.

**Funding Source(s):** Evans-Allen (USDA/CSREES)

### **3. Use of Crawfish Waste in Livestock Diets and Plant Production**

Freshwater crawfish (*Procambarus clarkii*) is a commercially important food product in Louisiana and other coastal areas. Only 15 percent of the crawfish is edible. The remaining 85 percent is considered as waste. The waste presents a major disposal problem. To prevent a mounting and severe environmental problem, viable applications of the waste are urgently needed. Between 35 –80 million tons of crawfish wastes are produced in Louisiana alone. Researchers at the University are exploring ways to utilize this abundant waste product.

**Key Theme:** New Uses for Agricultural Product

**Output Indicators:** Results indicate that pigs placed on tests from the grower to finisher stages of production can utilize crawfish waste meal (CWM). CWM in the diets at the levels of 12.5 percent and 24 percent did not adversely affect average daily gain (ADG). The results further revealed that soybean oil meal (SBOM) in kid goats rations can be substituted with CWM up to 75 percent. In the soil, it was found that composted CWM had a beneficial effect on plant growth.

**Outcome Indicators:** The use of crawfish waste meal in the diets of livestock and as a soil amendment has a potential to reduce the overall cost of feed and fertilizers. The approach can help increase the profit margins of farmers. Recycling crawfish waste without polluting the environment could be helpful in some resource management and sustainable agricultural systems. Receipt of a patent for the crawfish waste will stimulate industrial interest in adding value to this product.

**Impact:** Effectively utilizing crawfish waste meal as a protein supplement could reduce the cost of protein in livestock. The main protein source in livestock is soybean oil meal (SBOM) which sells for approximately \$270 per ton, while crawfish meal can be generally obtained for \$50 or less. This project could provide short and long term economic benefits to the livestock, crawfish and fertilizer industries.

Feed costs make up the largest cost of livestock production. Of all livestock feeds, protein cost accounts for the largest proportion of nutrient costs. Finding alternative protein supplements is vital to reducing these high costs. Our studies with baby pigs, broilers, and goats show that crawfish waste meal could be incorporated successfully in these diets. In areas where crawfish waste is abundant, the conversion of the waste to meal shows great potential. Positive findings for crawfish waste meal could lead to an increased focus on crawfish, crab, and shrimp waste converted to meal forms. The cost of producing the crawfish waste meal converted to feed meal were at least 50 percent less than soybean meal when used as protein supplement.

**Scope of Impact:** Findings from the study have been disseminated to the scientific community in the form of professional paper/poster presentations, and other media outlets.

**Funding Source(s):** Evans-Allen (USDA/CSREES)

#### **4. Utilizing Multiple Indices to Measure Quality Deterioration in Value-Added Meat Products During Storage**

Many Americans have increased the demand for more low-fat, high protein meats but are oblivious to the benefits and sources of goat and rabbit meat. Rabbit and goat meats are highly nutritious with fat contents lower than other meats. However, they are not widely consumed in the United States because the marketing of these products are unstructured, therefore resulting in economic limitations for goat and rabbit farmers in the Delta region. To increase the productivity and profitability of Louisiana small-scale farmers, (formulated meat products) potential outlets for utilization of goat and rabbit meat were created in the Meat Processing Laboratory at Southern University. There is a great potential for these products to be marketed but before this is done, all safety (quality deterioration with time and temperature) and regulatory measures have to be addressed.

This project addresses (a) promoting a safe and secure food system, (b) expanding the understanding of the hazards to a safe meat supply, (c) enhancing economic opportunity and quality of life for Americans.

**Key Theme:** Adding value to new agricultural product

**Output Indicators:** Scientists involved in this study have published and presented their work in scientific journals and at professional meetings and conferences. Two articles appeared in the *Journal of Food Sciences*, and *Goat Rancher*. Two abstracts were in the *Proceedings of the Annual Meeting of the Food Expo (Proceedings of the Institute of Food Technologist)*, and one abstract was presented in the *Proceedings of the Annual Meeting of the Southern Section of the American Society of Animal Science*.

Processing of rabbit, goat and beef hearts into defatted muscle proteins and meat products may also increase the utilization of these nontraditional meats. Powdered goat hearts (surimi) processed in our laboratory was found to be more effective in binding water (increased juiciness) in patties than a powdered beef surimi, suggesting that goat heart surimi has the potential to be a stable functional ingredient in meat products.

**Outcome Indicators:** Value-added patties, sausage and nuggets have been produced from nontraditional products (goat and rabbit meat). Also, defatted muscle proteins were formulated from beef, rabbit and goat hearts and used as stabilizers in beef, goat and rabbit patties. These products were found to be nutritionally sound and highly acceptable with the potential to impact the nutritional status of residents of the state of Louisiana. The nutritional products developed from goat and rabbit meat have the potential to enhance the health status of individuals with a high incidence of obesity and other

chronic diseases. The introduction of these products into the marketplace has enormous potential of enhancing production with great benefits to the food processing industries. Furthermore, the economic potential of these products to the small-scale producers will be enhanced once these products are stabilized in the market. Studies are underway to address safety and regulatory measures before products are fully put on the market. High quality, pathogen-free, value-added meat patties will be available in the marketplace, thus enhancing the economic potential of goat and rabbit producers.

**Publication/Presentation:**

McLean-Meyinsse, P., Atkinson, Cheryl. "An Analysis of Household Consumption of Rabbit Meat in the Southern United States". **Journal of Food Distribution Research**. March 2004 .

**Impact:** Thus far, goat and rabbit meat were combined with oat gum and oatrim (effective binders with hypocholestermic properties) and formulated into traditional meat products– patties, sausage and nuggets. The formulated products were found to be texturally enhanced, nutritionally sound (low fat, low cholesterol, and high protein) and were highly accepted by a consumer panel. They offer a healthier alternative than some popular meat products that are formulated with fat and are common in the marketplace.

**Scope of Impact:** This is a multi-disciplinary project involving collaboration between the Animal Science Department at LSU and the Human Nutrition, Health, Family and Consumer Sciences Programs at SUAREC.

High quality, pathogen-free value-added meat (goat and rabbit) patties will be available in the marketplace. These products will have the potential to enhance the health status of individuals with high incidence of obesity and other chronic diseases. Also, the introduction of these products into the market place could potentially enhance the economic potentials of goat and rabbit meats, thus providing producers with sources of additional revenues.

**Funding Source(s):** Evans-Allen (USDA/CSREES)

## **5. Modified Hydroponics Systems for Field Production of Strawberry**

Urban agriculture has been expanding globally. It is estimated that 200 million people around the world are participating in metropolitan agriculture.. With a large population that is more health-conscious and demanding for fresh and quality produce from organic and less pesticide usage systems, the number of metropolitan farmers are on the rise. With the impending ban on the use of methyl bromide in strawberry fields by 2005 and the resulting loss from non-methyl bromide use, hydroponics greenhouse production appears to be a good alternative. Strawberry is a high cash-value crop with high anti-oxidant content. There is a steady demand for strawberry especially in the United States. Recent research data indicates that hydroponics, once a high investment venture, has become a low cost viable system for small farmers particularly those in the metropolitan areas.

**Key Theme:** Economical and sustainable production system

**Output Indicators:** Fruit yields per sq. meter were 1.96047 kg, 1.39208 kg, and 0.99638 kg for 2-4 VertiH, Vertigro-6, and NFT, respectively. Marketable fruit yield was 70 percent for VertiGro-6, 66 percent for NFT, and 60 percent for 2-4 vertiH systems, respectively. No enriched carbon dioxide and pollinators were used in the greenhouse. Research findings of these experiments provide a useful indication on the feasibility of these modified hydroponics systems for commercial production to about 3,000 existing soilless culture growers in the southeastern region of the United States. The information available through these findings will stimulate the interest of many urban dwellers to use one of the developed systems to grow strawberry and vegetables for home consumption in their limited apartment space and land in the backyard. Some potential growers will use the modified systems for niche market production of pesticide-free produce.

**Publications/Presentations**

Chin, Kit L. and Yadong Qi. 2001. Comparison of modified hydroponics systems for greenhouse strawberry production. The First Asian Pacific Conference on Soilless Culture and Exhibition, Singapore.

**Outcome Indicators:** There was no difference in the quality of strawberry between field grown and hydroponics systems grown. Hydroponic systems require less pesticides and herbicides. Prevalence of insect problems is reduced and pesticide-free crops are possible with the hydroponic systems. Plant grown at the top level of the systems produced higher fruit yield and fruit on a plant basis than those grown at lower levels. No significant differences in total soluble solids (TSS) and chlorophyll content of leaves were observed among plants grown at different levels.

**Impact:** The results provide alternative method of producing pesticide-free strawberry and vegetables that was not feasible under traditional methods to urban dwellers and small producers. Less pesticide usage means higher profit margin. Based on existing data, the modified hydroponic systems are recommended for home growers who desire pesticide-free strawberry and vegetables for home consumption.

**Scope of Impact:** Small and limited resource producers especially in Louisiana and the Southeastern region of the U. S. could benefit tremendously from this study.

**Funding Source(s):** Evans-Allen (USDA/CSREES)

**EXTENSION PROGRAMS:**

The following outreach programs were conducted for clients in the state to enhance their capacity to carry out an agricultural production system that is highly competitive in the global economy.

- 0. Small Farm Viability
- 0. Adding Value to New and Old Agriculture Products
- 0. Louisiana Agricultural Mediation Program (LAMP)

## **1. Small Farm Viability**

Small farm viability and sustaining the family farm continues to be a very important initiative for the Southern University Agricultural Research and Extension Center. Our target audiences primarily consist of limited resource producers who are categorized as being socially disadvantaged. According to the most recent Census of Agriculture data (2002), all minority groups, to include African Americans are significant contributors to agriculture and their numbers have increased since the last census in 1997. The 2002 Census of Agriculture reported a total of 2,317 African American farmers in Louisiana compared to 1166 reported in 1997. This represents a 98.7% increase in the number of African American farmers being counted.

**Output:** Financial management workshops and training meetings focused on planning, analyzing, marketing of products, risk management, legal issues, alternative enterprises, alternative markets, and being able to control business performance by clients. Clients were trained on the techniques of recordkeeping to enhance their knowledge/skills to enable them to maintain records of their alternative crops, alternative markets, income, expenses, profit/loss, assets, liabilities, etc. Additional information was provided on tax preparation, farmers markets, sustainable agriculture, new and available programs and services at various locations. Over 22,401 persons benefited from the workshops, training sessions and individual contacts by the agricultural faculty and staff.

Five hundred and fifty small producers received farm safety and pesticide certification training and of that number, 199 persons were either certified or recertified as pesticide applicators. Field days and farm demonstration tours were conducted throughout the state to provide educational information to producers. Over 300,000 pieces of extension materials were distributed in the form of newsletters, newspaper articles, technical reports, research highlights, special publications, informational flyers, television broadcast and fact sheets to the clientele.

Environmental issues, water quality, farm safety and pesticide certification continue to be hot topics among agricultural producers. Several meetings were held addressing these issues.

**Impact:** Five hundred and fifty small producers received farm safety and pesticide certification training and of that number, 199 persons were either certified or recertified as pesticide applicators. Producers have a better understanding of their farm situation and outlook and an awareness of what skills and resources would be necessary to improve their individual situation. Some of the clients adopted practices introduced to them.

**Scope of Impact:** Small and limited resource producers throughout the state of Louisiana.

**Sources of Funds:** Smith-Lever Act, Section 1444

## **2. Adding Value to New and Old Agricultural Products**

SUAREC's goals were to help producers become effective managers of the enterprises they currently operate, and to help find new and alternative enterprises to give producers in the state of Louisiana a comparative advantage due to the scale of production and/or effective marketing strategies. Target enterprises include meat goats, beef cattle, pastured poultry, rabbit processing and vegetables. Trainings, workshops and meetings were held to provide education and information to the clientele concerning the various ways they can add value to their commodities and also to inform them of alternative enterprises which may be suitable for their individual situations and circumstances. About 49,600 individuals were contacted and information disseminated on meat goats, beef cattle, pastured poultry, rabbit processing, home gardens, vegetables and ornamentals. Producers who have been producing the traditional agronomic crops were encouraged to devote a small section of their land to an alternative enterprise. Marketing is a major focus of SUAREC and the work continues especially as we work with the producers to diversify and add value to their commodities.

**Impact:** About 3,665 livestock and vegetable producers increased their awareness and adopted one or more value-added approaches or practices such as developing direct, regional and terminal marketing channels. Approximately 915 producers in the state received individual and commodity specific marketing assistance. Agricultural producers in the state of Louisiana are now more capable of analyzing their individual farm situations and deciding what changes or modifications need to be made to realize greater yields and profits.

**Scope of Impact:** The Southern University Agricultural Research and Extension Center, in collaboration with the Louisiana Department of Agriculture, the Louisiana State University Agricultural Center and local grassroots farmer organizations delivered the educational programs to enhance the capacity of small-scale farmers in Louisiana to operate an agricultural system that is highly competitive in the global economy.

**Funding Source(s):** Smith-Lever Act, Section 1444

## **3. Louisiana Agricultural Mediation Program (LAMP)**

LAMP was established to provide USDA program participants an opportunity to resolve their disputes through mediation. Therefore, the target population/clientele were agricultural producers in the State of Louisiana who participated in and/or applied for programs provided by USDA. The majority of the participants of these programs were limited resource farmers; these persons were the primary target population of LAMP. The target area was the entirety of the State of Louisiana. All agricultural producers in

the State are qualified for the program. LAMP was established to provide mediation services, and direct assistance needed to prepare for mediation, that assisted in resolving disputes between agricultural producers and their creditors, as well as disputes involving “adverse decisions” of various USDA agencies, such as Farm Services Agency (FSA), the Natural Resources Conservation Services (NRCS), and others. The mediation process would provide an alternative dispute resolution to the agricultural producers, i.e., mediation rather than their previous exclusive dispute resolution process of appealing the decision. Through mediation, other mitigating circumstances were considered rather than merely if the agricultural producer complied with the “black letter” of the USDA regulations and the parties were able to develop alternative strategies to assist the farmers with qualifying for USDA programs.

Overall goals of LAMP are to: 1) assist with creating an agricultural production system that is highly competitive in the global economy; 2) assist by developing a program that enhances the greater harmony between agriculture and the environment. These goals are attained by: 1) availability of technical assistance components that would provide agricultural producers with information regarding legal issues that pertain to their agricultural enterprise, and 2) an educational component whereby a series of seminars would be held to enlighten agricultural producers across the state on topics of interest, such as the advantages of drafting and recording agricultural leases, the process of becoming creditworthy, the advantages of estate planning for the purpose of preserving farms and land for future generations, etc.

**Key Theme:** Alternative dispute resolution mechanism for agricultural producers

**Output Indicators:** The program has been conducting major media announcements across the State of Louisiana informing agricultural producers about LAMP and its purpose. The program analyst attended agricultural group meetings across the state for the same purpose. As a result of these informational mechanisms, the clientele responded and requested the services of LAMP. Successful mediations were conducted whereby clients were given a list of items to correct and their loan application would be reviewed at a later date, or other methods were utilized to find clients creditworthy. As a result of media coverage, agricultural producers also elicited information on other legal issues from the program analyst of LAMP, to resolve legal problems.

**Outcome Indicators:** Many of the clients who were assisted by LAMP were party to the Black Farmers Lawsuit. These persons lost their faith in the USDA due to the appearance of impropriety that had been perceived to have been exerted by various USDA agencies. LAMP helped to reestablish agricultural producers’ faith in the USDA programs. In future, if they receive adverse decisions from those agencies, they have an alternative to resolve their disputes at no cost to them. This process will eliminate the perception of bias.

**Impacts:** In this period, approximately 350 individuals benefited from this program. Fifteen were provided the no cost mediation service to assist with their adverse decision. In the State of Louisiana, legal fees commence at \$150/hour and increase from that point,

whereby retainer fees generally require a minimum of 10 hours. The mediation process that was provided, allowed our clients to save the cost of employing expensive legal counsel as well as the cost of litigation. Furthermore, the citizens did not have to face the drastic result of losing their farm or being prevented from farming for the season. Additionally, USDA was saved the cost of appeal and perhaps the cost of litigation as well. Of those persons attending the legal seminars, at least 80 percent indicated via surveys that they found the information beneficial and enlightening, and thought such seminars should continue to be presented. Agricultural producers became educated on matters that would assist their enterprises regarding leases that would prevent future costly legal issues.

**Scope of Impact:** State of Louisiana

**Funding Source(s):** Smith-Lever Act, Section 1444

## **National Goal 2: A safe and secure food and fiber system.**

SUAREC's Sustainable Agricultural Systems Programs, and the Nutrition and Health Programs in cooperation with the Plant and Animal Production Systems, the Human Nutrition, Health, Family and Consumer Sciences for research and the Agriculture and Natural Resources Program, the Diet, Nutrition and Health Programs for extension addressed National Goal 2 through the following programs :

### **RESEARCH PROJECTS:**

No research was specifically conducted under Goal 2 for FY 2004

### **EXTENSION PROGRAMS:**

According to USDA/Food and Nutrition Service, the number of food stamp recipients grew by about 4 million between FY 2001 and FY 2003. In the state of Louisiana, data indicate an increase of almost 79 percent during the same period. About 250,388 families receive food stamps in the state to feed at least 655,300 people. The average amount given is \$228.07 per household with an average household consisting of 2.3 people. However, despite the increased numbers of individuals receiving governmental assistance in the form of food stamps, there are still food insecure households in Louisiana. Nationally, Louisiana ranks fifth in food insecurity and ninth in hunger-filled households. Sadly, most of these households are comprised of a large percentage of young children and the elderly.

The following extension programs were conducted to achieve National Goal 2: A safe and secure food and fiber system.

- 0. Families First – Nutrition Education and Wellness System (FF-NEWS)
- 0. Food Safety at Home – Computer Based Food Safety
- 0. Preventing Foodborne Illness in a Vulnerable Lower Mississippi Delta Population

### **1. Families First – Nutrition Education and Wellness System (FF-NEWS)**

The Families First – Nutrition Education and Wellness System targets food stamp eligible and food stamp participants to assist the state of Louisiana in combating food insecurity and also in providing nutrition education and intervention activities.

A major component within the Families First – Nutrition Education and Wellness System program is assisting families, with not only stretching their food dollar, but also in incorporating low-cost healthy menu selections within their meal plan. Educational materials were distributed to targeted FF-NEWS parishes which have full-time Nutrition Program Assistants that provide nutrition information. These parishes include: East Baton Rouge, East Feliciana, Ascension, St. James, East Carroll, West Carroll, Avoyelles, Evangeline, Calcasieu and Lafayette. These outreach initiatives will be expanded to include Orleans and St. Tammany parishes.

**Key Theme:** Food Accessibility and Affordability

**Output Indicators:** Nutrition Program Assistants in ten parishes made over 62,685 contacts through recipe/fact sheets. Of this number, 44,476 were Food for Families/Seniors participants, 10,855 were Commodity Foods Participants, 2,527 were Food Stamp Eligible participants and 4,827 were non-enrolled group participants.

Publications – Nutrition Nibbles Fact Sheet (produced monthly)

Information was provided through one page fact sheets entitled, “Nutrition Nibbles”, that utilized concepts presented in lessons from the FF-NEWS curriculum. Some of the topics, were:

- “Breaking the Fast” (the importance of starting your day with breakfast);
- “The Skinny on Fat” (how to reduce your fat intake);
- “Aim, Build, and Choose for Good Health” (Dietary Guidelines);
- “Spice up Your Life without Added Salt”;
- “Don’t Be a Chicken, Use Your Turkey Smarts (food safety tips for the holidays);
- “Don’t be a Food Scrooge for the Holidays” (tips on healthy holiday eating).

**Outcome Indicators:** Evaluations to assess the program were conducted on a quarterly basis. Results of these evaluations show, that 91.5 percent of monthly contacts and 95 percent of quarterly contacts felt that the information presented in our program is useful; 93 percent of monthly participants felt that they had learned at least one nutrition fact that would help them make healthy changes in their eating habits; 100 percent of quarterly contacts reported they are now shopping from grocery lists as opposed to impulse shopping and 100 percent have begun to pay attention to food safety guidelines when preparing food.

The FF-NEWS program is a nutrition intervention program designed to help with selection and preparation of meals consistent with cultural traditions while improving overall health. Ten parishes were targeted, and were provided nutrition information to persons receiving or eligible to receive food stamps.

Assessment of program participants provided the following:

- 1) The participants enjoyed the lesson on “Spice up Your Life without Added Salt,” and they discussed how they have to watch their salt intake because they are coping with high blood pressure. After tasting the recipe, “Mexican Chicken Dip”, they stated it was very good. Apart from making chicken salad with canned chicken, they received from the distribution, they now have another method of using the canned chicken.
- 2) A young mother tasted the Texas Caviar recipe and stated she liked it and was going home to prepare this recipe for her family’s evening meal along with some chicken.
- 3) A participant stated that his family enjoys the 100 percent wheat bread suggested by the program.
- 4) Participants at the Food for Families/Seniors distribution sites are eager to receive the fact sheets because they are factual and easy to read.

**Impact:** The preliminary results of an evaluation study conducted by the Office of Planning and Evaluation at SUAREC show that 95 percent of the participants in the nutrition classes said they benefited from the activities. They also stated that nutrition classes helped them improve dietary habits and to reduce health risk factors.

**Scope of Impact:** SUAREC in collaboration with the United States Department of Agriculture/Food and Nutrition Services, the Louisiana State Food Stamp Office and local parish community and health agencies provides nutrition programs to citizens of Louisiana.

**Funding Source(s):** Smith-Lever Act, Section 1444

## **2. Food Safety at Home – Computer Based Food Safety**

Foodborne diseases have a major impact on public health. The Center for Disease Control estimates that foodborne illnesses affect 76 million persons, causing 325,000 hospitalizations and 5,000 deaths in the United States each year. Consumers play an essential role in the prevention of foodborne illness through their food handling behaviors. Some foodborne illnesses result from food consumption or preparation behaviors that are known to be associated with higher risks of foodborne disease, such as the consumption of raw or undercooked ground beef, or the consumption of raw shellfish. Similarly, specific food preparation practices, such as inadequate cleaning of cutting boards after the handling of raw meat and poultry, most likely play a role in foodborne transmission of pathogens such as *Campylobacter jejuni* and *Salmonella* spp.

**Key Theme:** Food Safety

**Output Indicators:** For this project a Compact Disc (CD) was created in which 4 food safety lessons were presented (cook, chill, separate, clean).

**Outcome Indicators:** Clients who responded to our survey agreed that the computer-based food safety lessons were of value to them. Over half of those responding (53 percent) indicated that the best part of the project was learning the food safety information; 27 percent of clients liked using the laptop computer the best; and 26 percent found the teaching materials they received were the best part of the project.

**Impact:** An analysis of results from the first year of the project indicates that behavioral change as a result of the food safety lessons was positive in many areas. The greatest behavioral changes were seen in 5 areas:

- 66 percent of clients improved in using a thermometer to cook meat, chicken, turkey and fish thoroughly.
- 52 percent of clients improved handling of hot leftover food.
- 43 percent of clients adopted positive behaviors in washing fresh fruits and vegetables.
- 32 percent of clients properly used a microwave oven to cook and reheat foods.

Overall, positive behavioral change was seen in all areas that were evaluated on the post-test.

**Scope of Impact:** SUAREC in collaboration with the University of Wisconsin Extension Service, Cornell University Cooperative Extension, Great Lakes Intertribal Council and the Wisconsin Nutrition Education Program provide information to help ensure good handling of food.

**Funding Source(s):** Smith-Lever Act, Section 1444

### **3. Preventing Foodborne Illness in a Vulnerable Lower Mississippi Delta Population**

In the 1960s, the terrible plight of hunger of the Lower Mississippi Delta's (LMD) impoverished people was identified. Although anti-hunger efforts including Food Stamp Outreach, Nutrition Education, WIC, support for local food pantries and increasing School Breakfast, School Lunch and Summer Feeding Program are in place, low-income people in the Delta still suffer inadequate access to good nutrition. Poor nutrition and health hinder both physical and mental development. The inability to perform mentally and physically may be major contributors to the perpetuation of poverty in these individuals. Food-insecure individuals comprise a vulnerable population at increased risk of illness and for whom medical treatment may not be readily accessible.

The situation is particularly serious in the LMD. For example, an estimated 684,000 people in Louisiana face hunger each year (Second Harvesters, 1998). Conditions of poverty are significant in Louisiana. In 1998, 19.1 percent of Louisiana's population lived in poverty, and the rate is highest among young families and female-headed households. Half of families headed by women, without a spouse, presently live in poverty. Children younger than 18 years of age are Louisiana's poorest age group – 34

percent of children younger than 5 years of age live in poverty. Children in single-parent families are almost five times as likely to be living below the poverty level as are children in two-parent families.

The investigators surveyed existing food recovery operations and observed their food storage and handling facilities and current food-handling procedures. Existing Louisiana, Mississippi and Arkansas universities' research, extension and teaching faculty and appropriate government agencies were marshaled to standardize procedures and training protocols throughout the LMD regions and to extend their availability to LMD food handling personnel through direct-contact and distance learning outreach channels.

**Key Theme:** Food Safety

### **Output Indicators**

**Publications:** Fact Sheets were published and disseminated in the following subjects:

- What Causes Foodborne Illness?
- Preventing Foodborne Illness
- Keeping Food Out of the Temperature Danger Zone
- Personal Hygiene and Handwashing Procedures
- Cleaning and Sanitizing
- Handling and Serving Food Safely
- Food Storage
- Transporting Food Safely
- HACCP for Control of Food Safety
- Cleaning and Inspecting Fruits and Vegetables

**Outcome Indicators:** Data are currently being analyzed. However, preliminary results suggest that all persons attending sessions thought that they were successful and would be of great benefit to their establishments and clients. Also, feed back from participants indicated that the curriculum was used successfully to improve food safety knowledge for the subjects overall, and for subjects in each of the participating states. In addition, results from the behavior survey administered immediately after the food safety curricular instruction, indicated that the majority of food recovery personnel are already using or plan to use proper food safety practices in their agency or at home.

**Impact:** The “Serving Food Safely” Curriculum is currently being taught in three states, Louisiana, Mississippi and Arkansas.

**Scope of Impact:** SUAREC in collaboration with LSU Ag Center, University of Arkansas, and Mississippi State University.

**Funding Source(s):** Smith-Lever Act, Section 1444. USDA – National Integrated Food Safety Initiative

## **National Goal 3: A healthy, well nourished population.**

### **RESEARCH PROJECTS**

SUAREC's research projects conducted to ensure a healthy, well nourished population are as follows:

- 0. Nutrition Label Use, Nutritional Knowledge, and Food Security
- 0. Early Nutritional Intervention Strategies for Head Start Teachers
- 0. New Technologies for the Utilization of Textile Products

#### **1. Nutrition Label Use, Nutritional Knowledge, and Food Security in Louisiana**

Heart disease, cancer, stroke, and diabetes are four of the leading causes of death in the United States. All have been linked to poor diets. Louisiana has the second highest obesity rate in the United States, and the highest death rates from heart disease, cancer, and diabetes. Because of these dismal statistics, Congress passed the Nutrition Labeling and Education Act (NLEA) in 1990 to help consumers to make healthier food choices. The Act was implemented in 1994. The passage of the Welfare Reform Act (WRA) in 1996 dramatically changed the way the government provides assistance to poor families and children. Louisiana has a high poverty rate therefore; the WRA could adversely affect the food security of Louisiana's poorest families.

This project is designed to assess how the NLEA and the WRA have affected label use, nutritional knowledge, and the level of food security in Louisiana. The goal is to determine the effectiveness of NLEA and WRA on buying and eating habits, nutritional knowledge, and food security in Louisiana. A stratified random telephone survey was conducted in Louisiana in Fall 2002. The survey contained 1,300 respondents. Socioeconomic data were collected on respondents' age, household composition and size, educational levels, household income, ethnic origin, and gender. The survey also generated information on levels of nutritional knowledge and awareness, attitudes toward diet and health, and levels of food insecurity in the state. From the survey, about half of the respondents were less than 45 years of age; 32 percent were married without children; 43 percent had not attended college; 75 percent had household incomes below \$50,000; 74 percent were Caucasians, and 73 percent were women.

**Key Theme:** Nutrition and Food Security

**Output Indicators:** Develop strategies to get nutritional information where it is needed most, so as to foster better eating habits.

On a five-point rating scale (5=excellent and 1= poor), respondents expressed relatively weak impressions of the healthiness of their diet. Less than four out of ten respondents indicated that their diet was excellent (9 percent) or very good (27 percent). The highest percentage of respondents described their diet as "good" (39 percent). Almost one-fourth assessed their diet as fair (18 percent) or as poor (5 percent). These assessments were

strongly correlated with income levels. High and middle-income households were more likely to rank their diets as excellent or very good, while low-income households were more likely to regard their diets as unhealthy.

Ninety percent of high-income households and 89 percent of middle-income households agreed that diet can make a big difference in a person's chances of getting a disease, such as heart disease or cancer. Conversely, a large proportion (86 percent) of low-income residents agreed that choosing a healthy diet was a matter of knowing what foods were good for you and what foods were bad for you. Fifty percent of these respondents also felt that the foods they were eating were already healthy; therefore, there was no need to change their diet. Additionally, 41 percent of low-income respondents agreed with the statement that some people were born to be fat and some were born to be thin. Consequently, there was nothing they could do about their genetic composition.

**Publication/Presentation:**

McLean-Meyinsse, P. E. and D. Jones. 2004. "The ABCs for Good Health: How Do Louisiana Consumers Rank Selected Recommendations from the Dietary Guidelines for Americans?". The 2004 Conference of the Food Distribution Research Society, Morro Bay, California, October 10 – 13, 2004.

McLean-Meyinsse, P. E., D. Jones and C. Ferrygood. 2004. "How Do Louisiana Consumers Rank the Dietary Guidelines for Americans?". *Diet and Health Issues*. Research Report Number 2, July 2004.

McLean-Meyinsse, P. E. and D. Jones. 2004. "Nutritional Information Sources, Label Use, and Attitudes Toward Food Labels". *Diet and Health Issues*. Research Report Number1, February 2004.

**Outcome Indicators:** The end results show (a) how well Louisiana residents understand the information on the nutrition facts labels, (b) the level of label use in purchasing decisions, (c) the degree of accuracy in linking diets and health-related illnesses, and (d) the level and intensity of hunger and food insecurity in the state.

Other indicators are, dietary changes through greater nutritional awareness; changes in dietary practices; and a healthier population both in Louisiana and the nation.

To date, the major product is the completed survey. Ancillary products will include the following: (a) more research briefs distributed by extension personnel; (b) stronger ties and unity between extension and research as we intensify our efforts to help stakeholders change their eating habits and, ultimately, improve their health; and (c) wider dissemination through presentations at conferences and publications in professional journals.

**Impact:** Two undergraduate students are working on research papers for presentation. Media reports about the prevalence and fatal consequences of obesity and other food-related abnormalities in American society makes this study timely and important. One of the benefits of a healthier population is lower healthcare cost. Given that the State of

Louisiana spent \$1.4 billion between 1998 and 2000 on medical expenses related to adult obesity, any cost savings in this area could help fund worthy projects, particularly education.

**Scope of Impact:** The study will provide needed empirical data about food insecurity in Louisiana, the level of nutritional knowledge, awareness, and attitudes towards diet and health. The impact of the findings of the study will extend beyond the state of Louisiana.

**Funding Source(s):** Evans-Allen (USDA/CSREES)

## **2. Effectiveness of Early Nutritional Intervention Strategies for Head Start Teachers in Louisiana**

Obesity is a major concern in children and adults in the United States. Childhood obesity can be prevented or corrected if their diet is modified to decrease intakes of fat, saturated fat, salt, and calories. Prevention of hypertension, heart disease, and diabetes in children with a family history include avoiding becoming overweight or obese, moderating intake of fat, salt, and calories and exercising regularly. Childhood is an important time in human development and is also an ideal time for establishing healthful eating habits and exercise patterns. When children begin eating more meals away from home and when they begin making decisions about what to eat is a good time to provide nutrition education. Nutrition education can increase children's knowledge about nutrition and help to shape attitudes and food behavior.

The objectives of this project were: 1) to assess the dietary intake and health status of preschool Head Start children; 2) to develop detailed in-center/in-home nutrition intervention strategies (protocols) for Head Start teachers, preschool children and their families, and 3) to assess the effectiveness of intervention protocols in improving dietary intake and health status of preschoolers and their families, as measured by change in knowledge and behavior of teachers and families, the dietary intake, and physical and parameters of children. Supplies and materials were provided to Head Start Teachers including storybooks, puzzles, coloring books, teacher manuals, and food models for use in teaching nutritional interventions. All participating Head Start Centers had the participants to plant fruit and vegetables indoors and outdoors in garden plots and containers to promote healthier food choices.

**Key Theme:** Healthy nutrition education

**Output Indicators:** For FY 2004, workshops on early nutrition interventions were conducted on March 6, 2004 for participating parish council Head Start teachers and support staff. Head Start Teacher Workshop on dietary guidelines was presented August 15, 2004. About 1,500 copies of the following dietary guidelines such as Fitness and Exercise; Eating Plenty of Fruits and Vegetables Daily; Choosing Plenty of Grain Daily; and Childhood Obesity were disseminated at the workshop. Nutrition education curricula for Head Start children were presented to the teachers. Head Start parents received

nutrition education on dietary guidelines. To promote eating plenty of fruits and vegetables daily, children began planting of fruit and vegetable seeds for both indoor and outdoor gardening projects.

Dietary Guidelines (DG) guidance was incorporated into these subjects: math, science, health, nutrition, reading, story time, free play, mealtime, music, and art.

**Publications (Manuals)**

Southern University Agricultural Research and Extension Center. 2003. Early Nutritional intervention for Head Start Teachers in Louisiana Curriculum Guide (Pending)

Iberville Parish Head Start. 2003. Aim for Healthy Weight and Be Physically Active Daily. Nutrition Newsletter, August.

Iberville Parish Council Head Start. 2003. Dietary Guideline: Interventions for Teaching Child Nutrition and Menu Plans.

Harris, E. 2003. "Managing for Excellence Through Research and Teaching. Paper Presented at the Head Start Regional Conference Proceedings".

**Outcome Indicators:** Head Start Centers participating in the research began incorporating dietary guidelines information in the lesson plans and activities. Results and findings from the study will be disseminated to nutrition clinicians, child care administrators, and the research community. Participants at the workshops pledged to make healthier choices in their lifestyles.

**Impact:** The impact of the research is in enhancing the nutritional status, health, and physical well-being of Head Start teachers, children and their families. Adoption of recommended strategies hopefully will help to ensure healthy nutrition in preschool and Head Start children by developing healthy eating habits early in their lives. Post-test survey indicates the following impacts:

- 40 percent increase in physical activities
- 96 percent increase in Food Guide Pyramid use
- 62 percent increase in fruit and vegetable consumption
- 64 percent increase in moderation in cholesterol and trans fat intakes.

**Scope of Impact:** Preschools in Louisiana will benefit first from the results of the study. The dietary guidelines can be helpful in promoting positive dietary behavior, healthful lifestyles, and food safety among Louisiana citizens. Additionally, the research could also be of great benefit to preschools in the nation.

**Funding Source(s):** Evans-Allen (USDA/CSREES)

### 3. New Technologies for the Utilization of Textile Materials

Kenaf research is designed to improve kenaf fiber for apparel and craft applications. Digital printing research targets the characterization and study of the digital printing process. Limited research has been conducted on digital textile printing, thus the information obtained from this research is very significant. The research has provided new information on the processing of digitally printed fabrics in the following areas: color change during processing, optimum steaming time for color fixation, and instrumental color measurement of digitally printed fabrics. This information has the potential to lead to development of a new standardized test method for color measurement of digitally printed fabrics. The American Association of Textile Chemists and Colorists is the organization charged with approving the new test method. If such a test method is accepted, it will be used internationally.

**Key Theme:** Textiles development and health care

**Output Indicators:** Kenaf was extracted from stems through biological and chemical retting. The bacterially and chemically retted kenaf fibers were blended with cotton in varying percentages of 10/90, 25/75 and 50/50 kenaf/cotton blend fibers. The new digital printing laboratory was set-up. Print designs were developed using U4ia and Photoshop software. Sample fabrics were printed using the Encad Digital Fabric System. The following studies have been completed:

- 0) Determination of Dimensional Stability of Knitted and Woven Fabrics Using Accelerated Testing and Computer Imaging Procedures
- 0) Effect on Steaming Time on Colorfastness to Laundering of Digitally Printed Cotton
- 0) Change of Color Intensity of Digitally Printed Cotton Fabrics Due to Steaming

**Publications/Presentations:**

Namwamba, G.W., Dixon, D.L. (2004). Microscopic Characterization of Bacterially and Chemically Retted Kenaf Fibers. Abstract published on-line at [www.aatcc.org](http://www.aatcc.org). in the proceedings of the 2004 AATCC International Conference.

Dixon, D. L. and Namwamba, G. W. (2004). Effect of Steaming Time and Distance from Steam Source on Color Intensity of Individual CMYK Bands of Digitally Printed Cotton Fabrics. Abstract published on-line at [www.aatcc.org](http://www.aatcc.org). in the proceedings of the 2004 AATCC International Conference.

Namwamba, G., Scott, P., Dixon, D., Jackson, B. (2003). Summer Splash: African inspired outfit made with digitally printed fabric, an original design. Design abstract accepted for publication in the proceedings of the 2003 International Textiles and Apparel Association Conference in November.

Namwamba, G.W., Dixon, D.L. (2003). Effect of Steaming and Washing on Shrinkage of Inkjet Printed Cotton Fabric. Abstract published on-line at [www.aatcc.org](http://www.aatcc.org). in the proceedings of the 2003 AATCC International Conference.

Namwamba, G.W., Dixon, D.L., Ghebreiyessus, Y., Chen, Y., and Zhang, T., Kimmel, L. (2003). Effect of Retting Method on the Color of Kenaf Fiber. Abstract published on-line at [www.aatcc.org](http://www.aatcc.org). Poster presented at the 2003 AATCC International Conference.

Namwamba, G. and Dixon, D. L. 2003. "Colorfastness to Crocking and Laundering of Digitally Printed Cotton Fabric". Beltwide Cotton Conferences Proceedings.

Namwamba, G. N. and Dixon, D. L. 2003. "Change of Color Intensity of Digitally Printed Cotton Fabrics Due to Steaming". Published in the proceedings of the 13<sup>th</sup> Biennial ARD Conference.

Namwamba, G. N. and Dixon, D. L. 2003. "Bacterial Retting and Fiber Softening of Everglades Variety Kenaf for Apparel Applications". Published in the Proceedings of the 13<sup>th</sup> Biennial ARD Conference.

Dixon, D. L., and Namwamba, G. N. 2003. "The Effect of Steaming Time on the Colorfastness to Laundering of Digitally Printed Cotton Fabrics". Published in the Proceedings of the 13<sup>th</sup> Biennial ARD Conference.

Dixon, D. L., and Namwamba, G. N. 2003. "Determination of Dimensional Stability of Woven and Knitted Fabrics Using Accelerated Testing and Computer Imaging Procedures". Published in the Proceedings of the 13<sup>th</sup> Biennial ARD Conference.

Namwamba, G. and Dixon, D.L. 2003. "Colorfastness To Crocking And Laundering Of Digitally Printed Cotton Fabric". Beltwide Cotton Conference, January, Nashville, Tennessee.

Namwamba, G. N. and Dixon, D. L. 2003. "Change of Color Intensity of Digitally Printed Cotton Fabrics Due to Steaming". Paper Presented at the 13<sup>th</sup> Biennial ARD Conference.

Dixon, D. L., and Namwamba, G. N. 2003. "The effect of Steaming Time on the Colorfastness to Laundering of Digitally Printed Cotton Fabrics". Paper presented at the 13<sup>th</sup> Biennial ARD Conference.

Zhang, T., Chen, Y., Namwamba, G., Dixon, D., and Kimmel, L. 2002. "Chemical Treatment for Improving Kenaf Spinnability". Abstract Published in the August 2002 Textile Review.

Namwamba, G.W., Dixon, D.L., Ghebreiyessus, Y., Chen, Y., and Zhang, T., Kimmel, L. 2002. "Bacterial Retting and Fiber Softening of Everglade Variety Kenaf for Apparel Applications". Poster Presented at American Kenaf Society Conference, Memphis, Tennessee.

**Poster Presentations:**

Namwamba, G. N. and Dixon, D. L. 2003. "Bacterial Retting and Fiber Softening of Everglades Variety Kenaf for Apparel Applications". Poster Presented at the 13<sup>th</sup> Biennial ARD Conference.

Dixon, D. L., and Namwamba, G. N. 2003. "Determination of Dimensional Stability of Woven and Knitted Fabrics Using Accelerated Testing and Computer Imaging Procedures". Poster presented at the 13<sup>th</sup> Biennial ARD Conference.

Zhang, T., Chen, Y., Namwamba, G., Dixon, D., and Kimmel, L. 2002. "Chemical Treatment for Improving Kenaf Spinnability". Poster presented at the 2002 AATCC International Conference.

**Design Abstracts Submitted to the International Textiles and Apparel Association Juried Design Competition.**

Namwamba, G. 2002. Tropical Heat – Kanga (A Digitally Printed Fabric and Original Design).

Namwamba, G., Scott, P., Dixon, D., Jackson, B. 2002. Summer Splash (African Inspired Outfit Made From Digitally Printed Fabric with Original Design).

**Outcome Indicators:** New affordable pre-treatments that can be applied in a small scale were developed and tested. Because of increased interest and expansion of the digital printing industry, the research information yielded has a major impact on the scientific community. This information will be used for outreach to clientele who may be interested in conducting a digital printing business.

Because kenaf has to be blended with a high percentage of cotton (at least 50 percent), increased use of this fiber will expand the uses of cotton, which is an important crop in Louisiana. The products resulting from kenaf have unique aesthetic properties that closely resemble the more expensive linen and that appeal to many consumers that are interested in "natural-looking" fabrics.

**Impact:** One group that will be impacted by this research is small business. The scalability of this technology makes it very suitable for small businesses. Individuals can use results of the research and small businesses to set up and operate enterprises that produce customized digitally printed products.

**Scope of Impact:** This technology is gaining prominence. Recently, the wife of the Governor of Iowa was featured in a major paper in Iowa for wearing a customized digitally printed gown to the Inaugural Ball at the White House. The gown was designed, printed and made by two Iowa State University professors conducting digital textile printing research.

This project is a multi-state project and the results have been shared with the following institutions:

Southern University Agricultural Research and Extension Center

Mississippi State University  
Louisiana State University  
University of Nebraska  
University of Kentucky  
Kansas State University  
Purdue University  
University of Wisconsin-Madison  
Auburn University  
University of Tennessee - Knoxville  
University of Arkansas – Fayetteville  
Colorado State University, Fort Collins, CO  
University of Georgia, Athens, GA

**Funding Source(s):** Evans-Allen (USDA/CSREES)

## **EXTENSION PROGRAMS**

The following educational programs were conducted to address National Goal 3:

- 0. Health Risk Factor Reduction
- 0. Healthy Community Advisory Councils

The citizens of Louisiana are becoming more concerned about the nutritional value, quality, safety of their diets, and affordability of food. The consumer's knowledge level about the relationship of food, diet, nutrition, fitness, and disease is vital to maintaining a healthy society. According to the Center for Disease Control (CDC) and a recent research published in the Journal of American Medical Association (JAMA), the leading causes of death in the U.S. in 2000 were tobacco (435,000 deaths; 18.1 percent of total U.S. deaths), poor diet and physical inactivity (400,000 deaths; 16.6 percent), and alcohol consumption (85,000 deaths; 3.5 percent). The 2003 Louisiana Health Report Card (p.41) reports that "Of the total of 41,495 deaths among Louisiana residents in 2001, the leading causes were: diseases of the heart; malignant neoplasms (cancer); cerebrovascular disease (stroke); accidents; and chronic lower respiratory diseases". Sixty-five percent of all deaths in Louisiana in 2001 were attributable to these five causes. The same report also states that "Although the last two decades have seen a dramatic downward trend in diseases of the heart, these conditions are Louisiana's number one cause of death". Over the last decade (1991-2001), the percent of overweight and/or obese Louisiana residents increased from 49 percent to 60 percent. Obesity is a health risk factor that has been observed to affect the health status of low income and minority populations.

## 1. Health Risk Factor Reduction

An individual's health and future health can be changed by controlling certain health risk factors. The removal of even one factor may reduce the threat of several diseases. The following are considered health risk factors that can be controlled:

1. **Physical Inactivity:** An active lifestyle prevents heart problems and other diseases
2. **Obesity:** Excessive weight puts a strain on the heart and circulatory systems.
2. **High blood pressure:** This condition is the major cause of heart and circulatory problems.
2. **Smoking:** This habit causes problems in the circulatory and respiratory systems.
2. **Stress:** Negative stress and tension places a strain on the heart and circulatory systems.
2. **High cholesterol:** Fatty materials are directly related to cardiovascular problems.

**Key Theme:** Health Education

**Output Indicators:** For FY 2004, thirteen seminars/activities were conducted for 597 participants including a workshop for 20 extension agents and volunteers. Also, twelve health education displays (health fairs), two radio talk shows, one television show, and six issues (September/October, November/December, January/February, March/April, May/June, and July/August 2004) of *Healthy Prescriptions* newsletter were used as mediums to reach people in the state. Nine thousand copies (1,500 copies for each issue) of *Healthy Prescriptions* newsletters were circulated throughout the state. Some of the topics covered at the seminars were HIV/AIDS, A Healthy Lifestyle Game Plan, Health Care as a Career Choice, and OrganWise Guys (Healthy Heart Challenge).

Two radio shows aired were, one in Point Coupee parish in October 2003 with approximately 4,200 people listening in to a discussion on the "Six Keys to Healthy Aging." The second radio show (Jaguar Journal) had about 5,100 listeners; the SU Ag Center's Health Education Program was the focus of the show. Listeners were able to call in and ask health related questions and have them answered by the State Health Specialist. A television show "Focus on the SU Ag Center" (Back to School Edition) aired in August 2004, the State Health Specialist discussed back to school health tips. Approximately 32,000 individuals viewed the show.

**Impact:** Results from new epidemiology studies are being reported every day. They show that if people take charge of their lifestyles, together with help and advice from their health professionals, they may expect to have a period of good health for a long time.

**Scope of Impact:** The existence of risk factors for a large number of diseases has led to a surge of interest in improving ones lifestyle in order to head off ill-health. Knowing the health risks factors associated with specific health problems can alert people to steps to take to reduce these risks.

**Funding Source(s):** Smith-Lever Act, Section 1444

## 2. Healthy Community Advisory Councils

Traditionally, the relationship between health service providers and the public has been one of expert to client. However, the need for greater participation in prioritizing, planning, and implementation of health services and programs is recognized as a cornerstone for health reform. The best interests of health restructuring are achieved by the broadest possible public input. As a result, a Healthy Community Advisory Council was established in three Louisiana parishes.

The councils provided a voice for volunteers, health care professionals, and community members to become directly involved in community health issues. Each council explored health needs and priorities in their communities and made recommendations to SUAREC on key health education programs.

**Key Theme:** Health Education

**Output Indicators:** Three workshops were held as a result of recommendations from the advisory councils: 1) Breast Cancer Awareness, 2) Diabetes Awareness, and 3) Obesity Prevention.

Childhood obesity is of great concern to our communities. Lafayette Parish Park and Recreation Department recognized this and through our health initiatives subcommittee, recommended that workshops and lectures be geared to combat some of the problems in the Lafayette area. During the summer day camp, health and nutrition workshops were conducted, focusing on obesity, physical fitness activities, and healthy food choices. Youths ages 10-13 were selected to participate. A total of 320 children participated in the workshops.

Another recommendation from the advisory council was a men's health awareness program. Eleven men participated in a workshop conducted on prostate health. The workshop informed the men of the recommended screening guidelines for the early detection of prostate cancer.

A third recommendation was to increase the public's awareness of HIV/AIDS. Two HIV/AIDS workshops were held (fall 2003 & spring 2004) with over 80 people in attendance. During fall registration 2004 on the Baton Rouge campus of Southern University (SUBR), HIV/AIDS awareness and prevention information and 400 survival kits were given out to students. The students were informed of the day and time HIV/AIDS testing is done on campus at the student health center.

**Impact:** Of the 320 children participating in the summer day camp, within two weeks, 75% of the children participated in all the physical activities, including exercise, ball playing and dance provided by the camp; 60% had more fruits and vegetable in their lunches and more water was consumed than drinks with a high sugar content and sodas. After the prostate health workshop, nine of the eleven participants went to the doctor for screening exams and promised to see their health care provider annually for preventative care. The SUBR Health Center normally performs about 100 HIV/AIDS tests annually but, after the HIV/AIDS awareness and prevention activities, the number increased by 51.

**Scope of Impact:** In order for Healthy Community Advisory Councils to be successful, they have to develop positive working relationships and open lines of communication with the staff at SUAREC and with their community members. Advisory Councils are important mechanism for participation in our health system.

**Funding Source(s):** Smith-Lever Act, Section 1444

## **National Goal 4: Greater harmony between agriculture and the environment**

### **RESEARCH PROJECTS**

Two projects were conducted as part of National Goal 4. They include:

0. Biological Response of Southern Red Oak and Willow Oak to Hypoxia In the Rhizosphere.
2. A GIS-RS Supported NPS-Management Information system for Urban Agriculture

Research emphasis will continue in the area of natural resource management and the protection of urban forest health. SUAREC scientists are hoping to generate useful research information relating to natural resource management systems. Information generated will assist the public in better understanding the global problems that threaten the quality of air, water and soil resources.

#### **1. Biological Responses of Southern Red Oak and Willow Oak to Hypoxia in the Rhizosphere**

Hypoxia caused by flooding significantly decreased average photosynthetic rate (Pn) of both Southern Red Oaks (*Quercus falcata*) and Willow Oaks (*Quercus phellos*). Average Pn of Southern Red Oaks decreased by 32 percent and Willow Oak decreased by 18 percent during flooding. Flooding significantly reduced the transpiration rate (Tr) of Southern Red Oaks and Willow Oaks. Tr of Southern Red Oaks was reduced by as much as 42 percent, while Tr of Willow Oaks was reduced by as much as 28 percent. Stomatal Conductance (Sc) of both Oak species was reduced significantly by flooding. Southern Red Oaks Sc was reduced by as much as 50 percent and Willow Oaks Sc was reduced by as much as 30 percent. Cyclic flooding significantly decreased the height growth rate (HGR) of both Southern Red Oaks and Willow Oaks. HGR of Southern Red Oaks was decreased by an average of 60 percent, while Willow Oaks HGR was decreased by 33 percent. Cyclic flooding significantly decreased the diameter growth rate (DGR) of both Southern Red Oaks and Willow Oaks. DGR for Southern Red Oaks were reduced by an average of 40 percent while Willow Oaks DGR was decreased by 25 percent. Soil chemical properties were significantly changed under flooding conditions when

compared to control plots. Soil biological activities were significantly reduced under flooding conditions for both Southern Red Oaks and Willow Oaks. In general, Willow Oaks were significantly more tolerant of hypoxia resulting from flooding conditions in the rhizosphere.

**Key Theme:** Biological adaptation, flooding, stress tolerance, and Hypoxia

**Output Indicators:**

**Publication/Presentation:**

- Four articles published/presented and one accepted for publication

Abdollahi, K.K. , Z.H. Ning, D. Collins and C. Lott. 2004. “Biological responses of Quercus phellos and Quercus falcate to Hypoxia in the Rhizosphere. Published in Proceedings of the Society of American Foresters (SAF). CIF/IFC&SAF. Tracking Id:119454.

Abdollahi, K.K. and Z.H. Ning. 2004. “Impact of Flooding and Soil Compaction on Tree Species”. 55pp. Published by GCRCC. Library of Congress Control Number: 2004116947

Abdollahi, K.K., A. Negatu, Z. H. Ning, and D. Collins. 2003. "Biological Responses of Southern Red Oak and Willow Oak to Hypoxia in Rhizosphere". Published in the Proceedings of the Society of American Foresters National Conference.

Abdollahi, K.K. , Z.H. Ning, D. Collins, and A. Negatu. 2001. “Impact of Urban Flooding on Physiology and Growth of Urban Trees”. Published in Proceedings of the Society of American Foresters (SAF) National Conference.

- One graduate M.S. thesis was developed by an urban forestry graduate student

John .M. Ashiru 2003. “ Impact of Flooding and Soil Compaction on Physiology and Growth of Oak Trees” . Masters Thesis. Southern University and A&M College. Thesis Directed by K.K. Abdollahi.

**Outcome Indicators:** Various professional and civic organizations are utilizing the findings and recommendations of this study to implement environmental projects.

**Impact:**

- Louisiana Arborist Association are utilizing the results.
- International Society of Arboriculture, Southern Chapter and State of Louisiana are utilizing the recommendations.
- The Society of American Foresters is publishing the results.
- The Louisiana Urban Forestry Council (LUFC) will be publishing some of

the results.

- Baton Rouge Green, a nationally recognized non-profit organization is using the results of this study to better manage its planting of oak trees.
- The project web site has been visited more than 3200 times.

Twenty-two communications regarding this project have been received from scientists, arborists, and the general public

**Scope of Impact:** Local, state, national, and possibly international.

**Funding Source(s):** Evans-Allen (USDA/CSREES)

## **2. A GIS-RS Supported NPS-Management Information system for Urban Agriculture**

The objectives of this study were to a) identify factors that influence nonpoint source pollution arising from urban agriculture in Louisiana; b) investigate the spatial relation between agricultural landcover and nonpoint source pollution; c) design a spatial decision-making model relating the impact of urban agriculture to water quality in urban agriculture in Louisiana, and d) disseminate the findings as nonpoint-source Education for Urban Agriculture.

**Key Theme:** Safe agriculture, urban area, and the environment

**Output Indicators:** Sources of non-point pollution in East Baton Rouge Parish (EBR) and nearby urban areas were identified. Of the identified sources of non-point source pollution, those related to urban agriculture were identified and documented. Base maps of the area pertinent to the research were collated. New maps were digitized from hardcopy to GIS format.

### **Publication/Presentation:**

Namwamba, F., Abdollahi, K., Wells, A. R., and Lyles, L. 2004. Urban Forest Management Using GIS/Remote Sensing: Management Plan for Burden Center. In Ning and Abdollahi (Eds): Urban and Community Forestry: Working Together to Facilitate Change. Moran Printing. Baton Rouge, LA.

Namwamba, F., Abdollahi, K., Namwamba, J. B., and Lyles, L. 2004. GIS and GPS-Based Urban Forest Statistics for Urban Forestry Ecosystem Analysis. In Ning and Abdollahi (Editors): Urban and Community Forestry: Working Together to Facilitate Change. Moran Printing. Baton Rouge, LA.

**Outcome Indicators:** The research conducted is adding, collating and documenting knowledge sources of non-point source pollution in East Baton Rouge Parish.

**Impact:** Identification and documentation of agriculture related sources of non-point pollution in EBR and surrounding urban areas is a major step in the process of

delineating sources of health hazards in the community. The study is providing vital information to agricultural producers and the parish government in their effort to minimize pollution.

**Scope of Impact:** The results of this study are beneficial to producers and parish governments throughout the state.

**Funding Source(s):** Evans-Allen (USDA/CSREES)

## **EXTENSION PROGRAMS**

One program was conducted:

### 0. Sustainable Agriculture

#### **1. Sustainable Agriculture**

Through outreach and education, agricultural producers have gained a greater understanding of the concept of sustainable agriculture. While no new specific programs have been implemented to address this issue, agents and specialist began to incorporate sustainable agricultural ideologies into the majority of their conversations with the clientele. Primary focus has been through efforts designed to reduce the use of pesticides, and on cultural management strategies, land management and resource management. SUAREC faculty and staff partner with the various USDA agencies, especially Natural Resources Conservation Service (NRCS) to provide the forum for discussions on the various conservation programs available. Additionally, on farm sustainability is explored by methods to include, but not be limited to, the use of farmer's markets, road side market stands and on-farm market outlets.

**Output Indicators:** Over 5,000 producers, gardeners, landowners, agricultural extension, and educators have gained knowledge on the principles and concepts of sustainable agriculture through SUAREC sustainable programs.

**Outcome Indicators:** Producers in twenty parishes (out of the 24 served by 1890 agents) have implemented or are seriously considering implementing segments of a sustainable agriculture program into their enterprises.

**Impact:** Five thousand agricultural producers and others with an interest in some form of agricultural production have increased their knowledge on sustainable agriculture and are more familiar with the various conservations programs, practices, laws and regulations.

**Scope of Impact:** SUAREC collaborates with the Louisiana Department of Agriculture, USDA/NRCS, LSU Ag Center, and other state and federal agencies dealing with natural resources and environmental issues in the delivery of educational programs.

**Funding Source(s):** Smith-Lever Act, Section 1444

## **National Goal 5: Enhanced economic opportunity and quality of life for Americans**

### **RESEARCH PROJECTS**

No research was specifically conducted under Goal 5 for FY 2004

### **EXTENSION PROGRAMS**

The following extension programs were conducted to achieve goal 5:

4. Youth Development (Youth Educational Support After School Program)
4. Youth Development (Livestock and Poultry Show)
4. Community and Faith-Based Development
4. Center for Rural and Small Business Development
4. The Center for Community Development (CCD)
4. Consumer Education and Training
4. Child Care Program
4. Family Strengthening Program

### **YOUTH DEVELOPMENT**

#### **Overview**

Current statistics indicate that 16.2% of U.S. children live in poverty. The percentage of children living in poverty is even greater in the state of Louisiana. The poverty rate of youth in Louisiana totals 247,970 accountings for 23% of youth under age 18. According to the 2000 census, Louisiana ranks in the lower one-third percentile among 50 states for quality of life for its youth. The state is ranked number one in the number of youth living in poverty, single parent families, health problems, and parents without high school education. These factors place about 60 percent of Louisiana's youth at risk. Youth development research indicates the need for character and quality education, parental involvement, and civic and citizenship education to help ensure the long-term positive

development of youth. Through SUAREC's educational programs, strategies have been developed to support academic learning by all members of the family.

### **1. Youth Development (Youth Educational Support After School Program)**

Youth Educational Support After School Program (YES) is an organized after-school program that incorporates education and fun in scholastic activities, expands the role of the parent/guardian with academic learning and builds support, self-esteem and confidence through completion of tasks and projects. YES is operational in nine parishes during the academic school year. During FY 2004, YES focused on: youth, parents, volunteers, school staff and community members at-large, working together on a community-based project that required total involvement.

**Impact:** The evaluations reflect that the majority of participants gained a greater appreciation of team-work and community volunteerism. The potential long-term impact is a sense of community service and pride. The on-going efforts of the YES Program allowed agents and volunteers to make approximately 7,650 contacts by providing hands-on activities in science, math, reading and character education and 986 youth and adults participated in these projects.

**Scope of Impact:** State specific

**Funding Source(s):** Smith-Lever Act, Section 1444

### **2. Youth Development (Livestock and Poultry Show)**

In March 2004, Southern University hosted its 61<sup>st</sup> Annual Livestock Show. SUAREC State Livestock and Poultry Show is a comprehensive program to help youth develop leadership and character skills. The Youth Rabbit Show also provides an opportunity for youth to enhance those skills. In preparation for both shows, youth work with the livestock (beef breeding, dairy, sheep, swine) and rabbits concerning proper nutrition and grooming. During the shows, youth are required to exhibit their animals and are judged on industry standards in the areas of showmanship, control and appearance of the animal. The animal is judged for quality and overall appearance according to industry standards. Youth are also provided with the opportunity to sell their animals at an open auction; thus, learning economic, business, and financial management practices. Corporate sponsors of the show are: Coca-Cola Bottling, Winn Dixie, Louisiana Cattlemen's Association, Southern University Teacher and Parents Federal Credit Union, Pilgrims Pride, Gerry Lane Enterprise and House of Raeford.

**Output Indicator:** During FY 2004, 10 Special Publications mainly brochures and publicity information were distributed to 9,845 youths and parents in the state. Five meetings attended by over 250 livestock participants were held to assist producers with production, management and marketing practices. Additionally, the Director and the

Assistant Director of Livestock conducted five media informational for about 144,510 and visited 30 parishes in the state to promote the shows. They also solicited and obtained corporate sponsorships for the shows.

**Outcome Indicator:** About 411 youth exhibitors with 651 entries from 30 parishes participated in the SUAREC State Livestock and Poultry Show. The Annual Horse Show hosted 750 participants with over 853 spectators; while the Delta Dairy Goat Show attracted 37 exhibitors at the Maurice A. Edmond Livestock Arena.

**Impact:** Approximately 80 percent of youth exhibited leadership skills relative to showmanship of their animal. Two hundred and fifty youth exhibited at the Southern University State and National Rabbit Show. An evaluation of the participants indicated that over 85 percent of the participants said the shows motivated them to try new ideas. One significant impact of the livestock show is that it helps participants to market their products. Over \$75,450 worth of products were sold during the 61<sup>st</sup> Annual Livestock Show.

**Scope of Impact:** Statewide

**Funding Source(s):** Smith-Lever Act, Section 1444

## **COMMUNITY DEVELOPMENT**

### **Overview**

The citizens of Louisiana continue to suffer economically and socially because of earlier dependency on depressed petroleum and agricultural industries. Louisiana is ranked among the top ten states for poverty for the opportunities of mainstream America. The economic and community development program works with faith-based and other social and civic organizations to explore and develop enterprises that will foster long-term economic viability.

For almost forty years, community based organizations have struggled to address problems of social, economic and physical distress in low to moderate-income communities throughout the United States. Despite the impressive growth of community based organizations in Louisiana during the past decade, these organizations face numerous human and organizational deficiencies. To flourish in an economy that demands increased accountability, community based organizations need strategies and directions to be effective in their endeavors.

The presence of a strong community development educational program is emerging as a critical need in many land-grant universities in the south. Agriculture, still a powerful economic engine in many parts of the rural south now finds itself sharing the economic stage with several other sectors, including manufacturing, services, and retail trade. Many community economies are growing and diversifying, while others are in an economic tailspin. Technological advances are creating a demand for better-educated,

more skilled workers, resulting in the displacement of thousands of Southern workers having little more than a high school education. Our region is witnessing dramatic compositional shifts in its population, including the rapid expansion of the South's Latino and African American populations. While some communities – both urban and rural – have attracted many new residents, others have struggled to hang on to the few residents that remain.

These are a sampling of the complex conditions facing communities in the Louisiana today. The challenges are many, but the opportunities are equally considerable. Enhancing the capacity of communities to build their own future requires guidance, information, and education.

### **3. Community and Faith-Based Development**

Extension specialists developed a comprehensive program to assist faith-based leaders by developing a Statewide Faith and Community Based Development Initiative that focuses on housing development, economic development, evaluation, strategic planning, organizational development, and health care. The programs were presented at the annual conference, and through various workshops and individual contacts. The Faith and Community Based initiative consists of two program areas. The Annual Faith and Community Based Conference is a four-day event with over forty-four workshops, several speakers and various vendors from the federal, state and local levels along with several national nonprofit service providers that assist the faith-based community. The second program areas are technical assistance (TA) and Capacity Building that is provided by individual consulting from extension specialists and agents who assist the Faith and Community Based community with organizational development, strategic planning, and project selections. Collaborators involved in the project are the Federal Reserve Bank, FDIC, various banks, U.S. Department of Housing and Urban Development, Louisiana Department of Economic Development, Louisiana Department of Health and Hospital and the United States Department of Health and Human Services.

**Impact:** More than 3,500 people attended these meetings, which is about 22 percent of the Faith and Community Based leadership in the State. A survey of participants showed that about 79 percent of the Faith and Community Based Organizations had strong desire to collaborate with service providers. About 67 percent of those surveyed after the meetings indicated they had implemented changes or were planning changes in their operations as a result of the meetings and individual contact. We have forged a collaborative relationship with several African American denominations such and the AME church, and the Church of God in Christ (COGIC). The City of Baton Rouge and the Governor of Louisiana have created faith-based task forces to assist faith-based organizations with accessing Federal HOME funds and State Funds.

**Scope of Impact:** State and Regional Specific

**Funding Source(s):** Smith-Lever Act, Section 1444

#### **4. Center for Rural and Small Business Development**

Rural dwellers in the United States continue to experience high levels of poverty due to lack of economic opportunities. The low quality of life of rural Americans has been a major concern for many, including both federal and state policy makers. About 19.6 percent of Louisiana residents live below the poverty level. However, poverty rates in some of the state's rural parishes (counties) are as high as 27 percent. The majority of rural communities lack business start-ups, business expansions, housing, economic development and growth. The objective of this initiative was to provide assistance to under represented groups in traditionally agricultural or other natural resource dependent communities in the State of Louisiana for the purpose of encouraging business and economic development.

SUAREC specialists and field agents along with the staff from the Center for Rural and Small Business Development assisted in the creation and sustainability of small business development in the state. Seven parishes (counties) in the south eastern part of the state are targeted – St. Helena, Iberville, East Feliciana, West Feliciana, West Baton Rouge, East Baton Rouge, and Pointe Coupee. A majority of the rural communities in these parishes lack business start-ups, business expansions, housing and economic development and growth. The Center also provides support to surrounding parishes – St. James, Livingston, Ascension, Tangipahoa, and rural communities – Gonzales, Donaldsonville, Denham Springs, Albany, Gramercy, and Litcher. The outreach efforts took place with seminars and one on one business consultations. The small business owners and potential owners were assisted in business plans, strategic planning, credit rating and loan packaging. The collaborators were the U.S. Department of Small Business (SBA), small business development centers and local area chamber of commerce.

**Output Indicators:** For FY 2004, four Louisiana rural parishes were targeted for business development; these parishes were East Feliciana, Iberville, St. Helena, and Tangipahoa. According to the U.S. Census figures, the poverty rates for these parishes range from 23 to 27 percent, and the median income ranges from \$24,970 to \$31,630. During the period, 10 workshops/seminars were held; 316 businesses received various forms of assistants; 69 field trips and 157 office visits were made by staff. About 214 inquiries from clients were processed.

**Outcome Indicators:** During the year, 168 loan packages totaling \$2,878,900 were processed; 71 loans were approved; 30 new businesses were started; 56 businesses expanded; 10 community development projects recorded; and BISNet acquired 100 additional computers.

**Impact:** Thirty new businesses were started with loans from the SBA Community Express Loan Program; 71 business loans were approved for \$1,409,400; and 70 new jobs were created/retained.

**Scope of Impact:** State Specific

**Funding Source(s):** Rural Business Cooperative Service (USDA/RBCS);  
Smith-Lever Act, Section 1444

## **5. The Center for Community Development (CCD)**

The CCD relates directly to the outreach efforts of the university's land-grant activities for the community. The CCD assists the University and SUAREC in developing and transferring knowledge that contributes to economic diversification and sustainable development in communities across Louisiana. A state technical assistance project has been concentrating on how best to assist community based development organizations in building capacity to better serve their communities. The project consists of meetings, individual contacts, site visits of successful community based development organizations and evaluative techniques. These programs were presented at the annual statewide community development conference aimed at nonprofit organizations that were involved in housing development, economic development and human capital development. The project collaborated with various statewide organizations such as the Louisiana Association of Community Economic Development, Louisiana Association of Nonprofit Organizations and the Louisiana State TANF Office to provide the most effective training and assistance to nonprofit organizations with organizational development activities.

**Impact:** More than 4,700 people attended these meetings, which is about 47 percent of the community development practitioners in the state. The meetings led to the state of Louisiana investing in the establishment of nonprofit organizational development programs to assist small minority operated nonprofit organizations. Several community and small group meetings were conducted to promote community development. Staff and stakeholders participated in the process. Forums were conducted in parishes with 1890 extension staff. The representation was broad-based, inclusive of gender, race, and ethnicity. Issues and concerns identified included: economic development, education, environment, youth development, family and structure, crime and other social issues.

A faith and community development resource compact disc was developed, which included sample copies of articles of incorporations, bylaws, 501-c-3 applications, over 700 pages of documents and books related to community development. Over 900 organizations received a copy of the disc.

**Scope of Impact:** State Specific

**Funding Source(s):** Smith-Lever Act, Section 1444

## **6. Consumer Education and Training**

Workshop and seminars were conducted on consumer lending and understanding taxes to educate and inform the community about the characteristics and practices of lenders who

utilize predatory lending techniques. In addition, a partnership was formed with the Louisiana Office of Financial Institutions and the Louisiana Bankers Associations to develop posters and brochures to inform service organizations about predatory lending. The posters and flyers were distributed to faith and community based organizations in Louisiana, who in turn will offer the material and resources to their respected communities.

Financial Consumer workshops were conducted; three (3) workshops on credit management and collaboration with local credit counseling organizations to bring education and information to organizations and individuals about consumer financial education. In addition, the CCD is a collaborating member of the Louisiana Jump Start Coalition which provides financial literature to organizations about consumer education.

**Impacts:** The financial education outreach was implemented in seven parishes. In collaboration with several banks, consumer credit advocates, and the IRS, over 17,000 contacts were made through educational consumer financial sheets and counseling sessions. Of this number, 14,000 were low to moderate income individuals and most were eligible for tax assistance and earned income credit assistance. About \$3.2 million in tax returns were completed and \$1.9 million in earned income tax credits to be received by over 3,200 residents in the Greater Baton Rouge area.

**Scope of Impact:** State and regional specific

**Funding Source(s):** Smith-Lever Act, Section 1444

## **7. Child Care Program**

Louisiana, has the highest child poverty rate in the south—29 percent and the second highest nationwide, according to the U. S. Census Bureau. It is estimated that there are around 14,000 children who are not receiving services through any other programs. In an attempt to reduce these alarming figures, we have continued our efforts to make available professional development classes for more than 15,000 child care providers across the state. Twelve thousand of these frontline workers are in licensed child care center facilities or registered family child care homes. The SUAREC Child Care Training Program provides a comprehensive and consistent child training program in eight parishes statewide. The program thus offered centers and family child care providers an opportunity to maintain their license by taking the required 12 hours of educational training. The state requires that child care providers have 12 hours of continuing education hours annually, especially if they are to receive monetary benefits from the state for services rendered to limited income families. Some child care providers operate business with limited resources and limited educational training. This lack of knowledge coupled with economic disparity prevents them from rendering quality care and being successful in the business. Therefore, our efforts are to increase educational obtainment in child development and quality care so those children from impoverished areas are able to be placed and taught in an environment that is education-friendly.

**Output Indicators:** In order to ensure that childcare providers deliver quality care, providers in eight Louisiana parishes have received 12 hours of professional training. Quality childcare exists in homes or facilities when the childcare providers interact with children; maintain safe environments, provide opportunities for children to learn social skills; and help children appreciate diversity in others. These training sessions were offered at convenient times, and held in accessible locations for providers in rural and urban areas of the state. Classes taught to the providers were based on the competency levels of the Child Development Associate (CDA) Credential. As a result of the training, providers have told us about their deficiencies. SUAREC specialists will structure a curriculum that meets the educational needs of most providers and prepare them for the CDA.

Training sessions for Providers:

Clock Hour Training Classes are researched-based classes designed to provide the academic information that corresponds with the Child Development Associate Credential. These child care providers attend classes under the tiers of Learning Environment, Working with Families, Physical and Intellectual Development, Social and Emotional Development, Professionalism in the Workplace, Management, Child Growth and Development, and Observation.

**Outcome Indicators:** A total of 2,215 providers attended class sessions and completed surveys during the sessions. The classes were made available to a diverse population of participants who included: African-Americans, Caucasians, Hispanics, and 2 of other races.

**Impact:** Class sessions held for participants enabled them to provide children with lessons that improved cognitive development and socialization. Evaluation of the participants also reflected knowledge gained and some behavior changed as a result of attending the training. Results of the evaluation can be summarized as follows:

- 20 percent of the providers indicated that they would acquire Child Development Credentials.
- 89 percent of the providers stated that they learned more because the training was sensitive to all learning styles.
- 91 percent of the providers stated that the structure of the training sessions, and the hands-on activities made it easier to gain more knowledge and increase skills.
- 74 percent of the providers indicated that child care classes gave them more ideas for class interaction with children and other center teachers.
- 87 percent of the providers indicated that they benefited more from the sessions than was intended

**Scope of Impact:** Initially for eight parishes however, more parishes were impacted through the training sessions.

**Funding Source(s):** Smith-Lever Act, Section 1444

## **8. Family Strengthening Program**

Families lack skills and knowledge in strengthening their family structure and developing a sense of community. Families statewide also lack knowledge in communicating with other family members and individuals in their communities. Extension educators have provided workshops and conducted an annual program that acknowledges families and the culture of families statewide. The programs were couched in the concepts of strengthening families (e.g., communication, contentment, and community). There were other class sessions that helped parents grasp children's stages of development, and modeling and understanding the appropriate behavior for children. These programs reached a total of 9,250 families.

**Impact** – Families and other individuals were given a basic background in communication and participated in sessions that allowed for some pragmatic experiences among families. Evaluations reflect that participants attending workshop sessions developed a better sense of communication within the family structure. The short-term objectives for program participants were accomplished in sessions where 95 percent of the family members and other individuals were able to define communication, express the value of communication in their family, and identify methods that could improve their settings. Program participants (40 percent) acquired research-based information which allowed them to change the methods they used in communicating with family members. As a result of these workshops and other meeting sessions, SUAREC extension services saved tax payers about \$81,180.

### **EVALUATION FRAMEWORK:**

Evaluation is a continuous process which is embedded in the SUAREC's entire program development process. It begins with stakeholder inputs where results are used to establish priorities, goals and objectives consistent with state, regional and national issues based on the land-grant philosophy and mission. At the state level, performance indicators are used to measure progress in accomplishing the objectives set by the Center. To ensure that data reported on performance indicators are consistent, valid and reliable, guidelines for reporting data on performance indicators were issued. Follow up reviews to validate information reported quarterly by research and extension personnel are conducted regularly. Additionally, to ensure reliability, supporting documentations are required of all data reported such as, sign-in sheets, meeting/workshop agenda, pictures, travel/contact logs, etc.

Finally, the Center conducts evaluation of research and extension programs to ascertain the impact of such programs on the clientele and to determine the usefulness of the programs in addressing the needs of clientele as follows:

1. Impact studies were conducted to determine the benefits of research and extension programs for clients who participated in different programs and activities.

2. Impact studies were conducted to determine the percent of clients who adopted recommended practices to enhance their operations; or percent of clients who utilized educational information to change their behavior.

3. Follow-up surveys were conducted each year to determine possible reasons for client drop out from participation in research projects or extension programs.

Educational programs implemented by the Center are available and useful to all citizens of Louisiana and primarily to clients in the areas of food, agricultural and human sciences, and to urban and rural dwellers, youth, government officials, faith and community leaders, and families.